Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (PREVIOUSLY PRESENTED) A method for the precise dynamic digital control of piezoelectric actuators for micropositioning systems having a proportional integral derivative (PID) regulator, the method comprising:

estimating future system behavior to minimize order deviations;

obtaining current correction signals a feedforward correction;

reducing latency times in the feedforward loop of a sampling system, by applying a signal of a command via a switch having a switchable bypass to a high resolution digital/analog converter with the high resolution digital/analog converter being operated at a sampling rate of the sampling system, a PID feedforward loop further leading to a fast digital/analog converter which is controlled independently of the sampling system; and

supplying output signals of the high resolution digital/analog converter and the fast digital/analog converter, which represent control voltages, in an added-up form to a piezoelectric actuator which together with a position sensor forms a controlled system.

2. (PREVIOUSLY PRESENTED) The method in accordance with claim 1, further comprising supplying signals of a command variable to the high resolution digital/analog

converter and carrying out weighting and/or filtering of the signals.

3. (PREVIOUSLY PRESENTED) The method in accordance with claim 1, further comprising applying a same command variable to both the fast digital/analog converter and the high-resolution digital/analog converter.

4. (PREVIOUSLY PRESENTED) The method in accordance with claim 1, further comprising linearizing the controlled system to avoid systematic errors in signal paths.

5. (PREVIOUSLY PRESENTED) The method in accordance with claim 1, further comprising pre-distorting control voltages and/or arrangement of band elimination filters to reduce system resonances.

6. (PREVIOUSLY PRESENTED) The method in accordance with claim 1, primarily operating the piezoelectric actuator in a controlled manner via a command variable, the feedforward loop, and the fast digital/analog converter; and secondarily operating the controlled system with position sensor in a subordinate manner.

7. (PREVIOUSLY PRESENTED) The method in accordance with claim 1, providing changes of a command variable to the fast digital/analog converter, to the high-resolution converter, or to both converters via a switch and/or control commands.

8. (PREVIOUSLY PRESENTED) The method in accordance with claim 1, further comprising selectively fetching various command variables via a switch.

9. (PREVIOUSLY PRESENTED) A control circuit for outputting a control signal to an external system, said control circuit comprising:

a feedback control path receiving a feedback signal from the external system and at least partially by digital signal processing generates a feedback control signal based on a control input signal and the feedback signal;

a feed-forward control path, separate from the feedback control path, the feed-forward control path generating a feed-forward control signal based on the control input signal; and

control signal generation circuitry generating the control signal based on the feedback control signal and the feed-forward control signal.

10. (PREVIOUSLY PRESENTED) The control circuit of claim 9, wherein the feedback control path comprises a first digital-to-analog converter operating at a first sampling frequency; and wherein the feed-forward control path comprises a second digital-to-analog converter that operates at a second sampling frequency, the second sampling frequency being higher than the first sampling frequency.

11. (PREVIOUSLY PRESENTED) The control circuit of claim 10, wherein the feedback signal comprises an analog signal; and wherein the feedback control path comprises an analog-to-digital converter that converts an analog signal obtained from the feedback signal into a digital signal on the basis of which the feedback control signal is generated, the analog-to-digital converter operating at the first sampling frequency.

12. (PREVIOUSLY PRESENTED) The control circuit of claim 10, wherein the control signal is an analog control signal, and wherein the control signal generation circuitry comprises an adder adding an analog output of the first digital-to-analog converter to an analog output of the second digital-to-analog converter.

13. (PREVIOUSLY PRESENTED) The control circuit of claim 9, wherein the control input signal is a digital control input signal.

14. (PREVIOUSLY PRESENTED) The control circuit of claim 9, wherein at least one of the circuit control signal and the feedback signal is an analog signal.

15. (CURRENTLY AMENDED) The control circuit of claim 9, wherein the feedback signal and the control signal are analog signals, the feedback control signal and the feed-forward control signal are digital signals, the feedback control path comprises an analog-to-digital converter converting an analog signal obtained from the feedback signal into a digital signal on the basis of which the feedback control signal is generated, and the control signal generation circuitry comprises:

a digital to analog converter; and

an adder adding the feedback control signal and the feed-forward control signal ~~and digital-to-analog converter~~.

16 (PREVIOUSLY PRESENTED) The control circuit of claim 15, wherein the adder adds the feedback control signal and the feed-forward control signal to obtain an intermediate signal, and wherein the digital-to-analog converter converts the intermediate signal into the control signal.